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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,582	08/25/2003	Junichi Takeuchi	NEC F-11100 DIV	3591

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HAYES, SOLOWAY P.C.
130 W. CUSHING STREET
TUCSON, AZ 85701

EXAMINER	
NGUYEN, LONG T	

ART UNIT	PAPER NUMBER
2816	

DATE MAILED: 10/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/647,582	TAKEUCHI, JUNICHI	
	Examiner	Art Unit	
	Long Nguyen	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 August 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/874,737.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This office action is responsive to the amendment filed on 8/16/04.

Specification

2. The disclosure is objected to because of the following informalities: in the amended specification (filed 8/16/04), on line 12 of the paragraph beginning with "Comparing FIG. 4 with FIG. 3" (i.e., the first paragraph of the amendment to the specification), the recitation "1C1" should be changed to --IC1--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 12, 22, and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 12, the recitation ""said fourth bias current driven by said third current source" on line 7 is misdescriptive because it is inconsistent with the independent claim (see line 9 of claim 11). Therefore, it appears that "third" in the above phrase should be changed to --fourth--.

With respect to claims 22 and 23, the recitation "said third bias current is a constant current" and "said fourth bias current is a constant current" in these claims are indefinite because they are inconsistent with what has already been claimed in the independent claim 11. Note that

independent claim 11 clearly recited that the third and fourth currents are varied (by a control circuit). Thus, the third and fourth currents cannot be constant.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 7-13, 16 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Hogeboom (USP 6,194,949).

With respect to claims 7-12, Figure 1 of Hogeboom discloses a driver, which includes: a pair of push-pull circuits (PMOS 30 and NMOS 50, and PMOS 20 and NMOS 40) for driving a load circuit complementary (driving downstream circuitry at differential outputs 200 and 210); a first current source circuit (71) for having a first bias current (Idc which is the current of transistor 71) flown to the pair of push-pull circuits; a second current source circuit (81) for having the first bias current (Idc which is the current of transistor 81) flown from the pair of push-pull circuits; a third current source circuit (70) capable of having a second bias current (Ida which is the current of transistor 70) flown to the pair of push-pull circuits; a fourth current source circuit (80) capable of having the second bias current (Ida which is the current of transistor 80) flown from the pair of push-pull circuits; and a control circuit (90 in Figure 2) for varying the second bias current (Ida) flown by the third current source circuit (70) and the second bias current (Ida) flown by the fourth current source circuit (80) according to a control signal

(signal at node 220 in Figure 2). Note that, in claim 11, the first bias current (Idc which is the current of transistor 71), a second bias current (Idc which is the current of transistor 81), a third bias current (Ida which is the current of transistor 70), and a fourth bias current (Ida which is the current of transistor 80).

With respect to claims 13, 16 and 19, it is seen from the Hogeboom reference that the control signal (90, Figure 2) is independent of drain voltages of the first to fourth current source circuits (i.e., node 90 in Figure 2 is independent of drain voltages of transistors 70, 71, 80 and 81 in Figure 1).

7. Claims 13-23 are rejected under 35 U.S.C. 102(e) as being anticipated by DeClue et al. (USP 6,281,715).

With respect to claims xxx, Figure 2 of DeClue et al. discloses a driver, which includes: a pair of push-pull circuits (M21 with M22, and M23 with M24) for driving a load circuit complementary (RL or driving downstream circuitry at differential outputs OUT, OUTB); a first current source circuit (ID1) for having a first bias current (Id1) flown to the pair of push-pull circuits; a second current source circuit (R21) for having the first bias current flown from the pair of push-pull circuits; a third current source circuit (207, M28, M27) capable of having a second bias current (Id2) flown to the pair of push-pull circuits; a fourth current source circuit (M25, M26) capable of having the second bias current flown from the pair of push-pull circuits; and a control circuit (IV2-IV5, XNOR) for varying the second bias current (ID2) driven by the third current source circuit and by the fourth current source circuit according to a control signal (IN). Note that the control signal (IN) is and external signal so it must be independent the voltages of the first to fourth current sources; and the first and second current sources (ID1 and R21) are

constant currents. Also note that, in claims 16-18, each push-pull circuit comprises two conductivity types of transistors (i.e., one of pulling up and the other one for pulling down). Also note that, in claims 19-23, the first bias current (ID1), a second bias current (current through resistor R21), a third bias current (ID2), and a fourth bias current (current through M25-M26). Further note that, with respect to claims 22 and 23, in view of the indefinite problems above, because the third and fourth currents (ID2, and current through M25-M26) in Figure 2 of the DeClue et al. reference are provided by the transistors and controlled by the control signal, so it also meets the limitation of claims 22 and 23.

Response to Arguments

8. Applicant's arguments filed 8/16/04 have been fully considered but they are not persuasive.

Applicant argues that the Hogeboom reference does not teach a pair of pull-pull circuits because Hogeboom does not teach two devices operating on separate halves of a single input cycle. However, this argument is not persuasive because the claim does not recite that "teach two devices operating on separate halves of a single input cycle". Further, in the operation of the Hogeboom reference, for operation of the first circuit (30, 50), the pre-driver (the NAND and NOR gates) receives input data, and controlling the on/off of transistors 30 and 50 so that if the transistor 30 is ON then the transistor 50 is OFF because that is how a driver should work (i.e., both transistors 30 and 50 cannot be ON because if it is, then the output 210 is unknown). Note that the second circuit (20, 40) also operates similarly as discussed. Thus, in each of the first and second circuit, when the pulling up transistor is ON for pulling up the output, then the pulling down transistor is OFF; and vice versa, when the pulling down transistor is ON for pulling down

the output, then the pulling up transistor is OFF. Thus, each of the circuits (30 with 50, 20 with 40) is reasonable to be considered as a push-pull circuit.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directly to Examiner Long Nguyen whose telephone number is (571) 272-1753. The Examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Callahan, can be reached at (571) 272-1740. The fax number for this group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

October 26, 2004

Long Nguyen
Primary Examiner
Art Unit: 2816